WHAT IS CLAIMED IS:

1. A system for non-invasively monitoring a blood constituent concentration in a living subject, said system comprising:

a light source which emits radiation at a plurality

of wavelengths;

an active pulse inducement device which causes a periodic change in the volume of blood in the fleshy medium;

an optical detector positioned to detect light which has propagated through said fleshy medium, said optical detector configured to generate an output signal indicative of the intensity of said radiation after attenuation through said fleshy medium; and

a signal processor responsive to said output signal to analyze said output signal to extract portions of said signal due to optical characteristics of said blood to determine the concentration of said constituent within said subject's bloodstream.

2. The system of Claim 1, wherein the active pulse inducement device causes a periodic change in the volume of blood in the fleshy medium independent of the natural flow of blood in said fleshy medium.

The system of Claim 1, wherein the active pulse inducement device causes a periodic change in the volume of blood in the fleshy medium in conjunction with the natural flow of blood in said fleshy medium.

4. The system of Claim 1, further comprising a receptable which receives said fleshy medium, said receptable further having an inflatable bladder.

The system of Claim 1, further comprising a receptacle which receives said fleshy medium, said receptacle further comprising a temperature variation element, said temperature variation element cyclicly varying the temperature of said fleshy medium in order to induce a change in the flow of blood in said fleshy medium.

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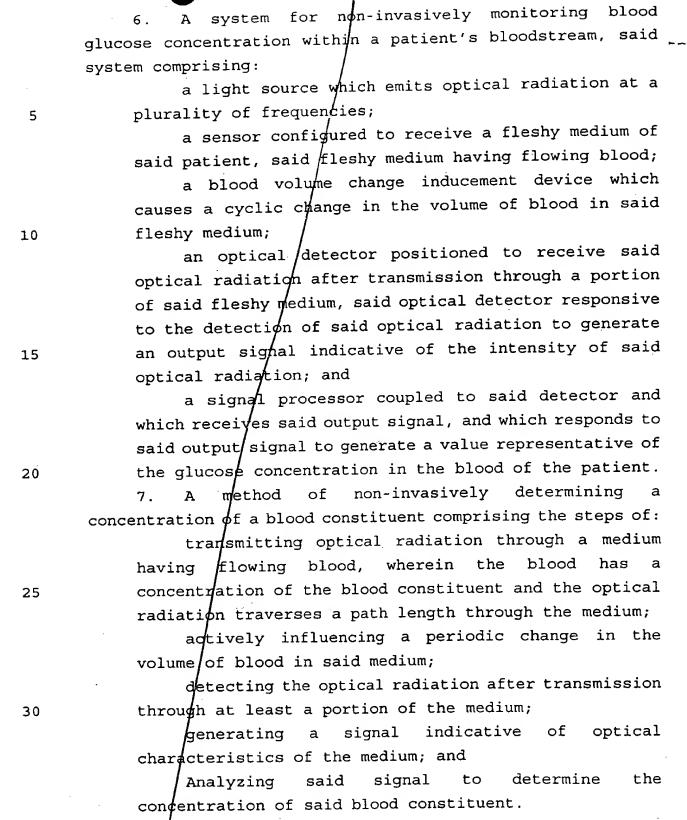
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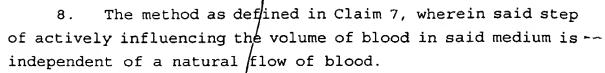
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- 9. The method as defined in Claim 7, wherein said step of actively influencing the volume of blood in said medium is in conjunction with said natural flow of blood.
- 10. The method as defined in Claim 7, wherein the blood constituent comprises blood glucose.
- 11. A method of actively varying the attenuation of optical radiation due to blood in a fleshy medium comprising the steps of:

transmitting optical radiation through said fleshy medium;

actively inducing a periodic change in the volume of blood in said medium; and

detecting said optical radiation after attenuation through said fleshy medium and generating and output signal indicative of the intensity of the attenuated signal.

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